Laser Peripheral Iridotomy (LPI)

the royal victorian eye and ear hospital

Disclaimer

SEE ALSO: Laser safety learning material

INDICATIONS FOR LPI

- Primary angle closure (PAC)
- Primary angle closure glaucoma (PACG)
- Fellow eye of PAC, PACG
- Narrow angle at risk for PAC
- Closure of previous LPI
- Uveitis causing complete posterior synechiae (iris bombe)

PRE-PROCEDURE EVALUATION

Informed consent:

- Risks: haemorrhage, inflammation, ghost image, need for additional laser, elevated intraocular pressure (IOP), possible decrease or loss of vision
- Explain indications for laser and what to expect (contact lens, discomfort)
- Consent form signed: correct procedure, correct eye

Measure and record: visual acuity, IOP

Pre treat eye to be lasered with:

- Pilocarpine 2% eye drops, 1 drop before procedure in order to constrict pupil and facilitate penetration
- Brimonidine 0.2% eye drops, 1 drop (decreases post operative pressure spike). Alternatively can be given after laser

PROCEDURE:

- Refer to laser safety protocol (i.e. laser in use signs, etc.)
- Correct protective eye wear for observer (1064 nm)
- Topical anaesthetic (oxybuprocaine 0.4% minim, proxymetacaine 0.5% eye drop)
- Contact lens specific for LPI, coupling gel
- Position contact lens and laser to visualize superior iris and select area for LPI. Preferred position, base of iris crypt, 11:00 or 1:00 o'clock under lid to prevent ghost image. PI needs to be as peripheral as possible.

Suggested laser settings

NOTE: laser settings may vary with different machines, contact lenses, and variable iris thicknesses and pigmentation

Blue to moderately brown irides

YAG Laser

- Total energy per shot (energy per individual pulse X number of pulses) 5-15 millijoules
- Pulses: 1-3 bursts per shot
- Spot size: 50 microns (fixed)
- **Common starting point: 2 to 3 millijoules, (single shot), may need to increase to 4 millijoules (single shot)**

Endpoint for laser: penetration through iris pigment epithelium with gush of pigment and fluid through hole

If haemorrhage: gentle pressure with contact lens against eye will control bleeding in most cases

Dark Brown Irides

May need Argon laser to thin iris stroma prior to using YAG laser to complete procedure

Argon Laser

- Energy: 500-1000 milliwatts
- Pulse: 1 burst
- Spot size: 50 microns
- Duraton: 0.05-0.1 second

Treat peripheral iris tissue in spot intended for LPI, until reach iris pigment epithelial layer.

Then complete penetration of pigment epithelial layer with YAG laser as above.

POST-PROCEDURE CARE:

Consider Brimonidine 0.2% eye drops, 1 drop immediately after laser if not given prior

Check IOP 30-60 minutes after procedure. If there is a significant rise from baseline IOP, treat as indicated and recheck IOP 1 hour later.

Prednefrin forte® eye drops: 1 drop QID for 7 days

FOLLOW UP:

1 week to assess patency of LPI, anterior chamber depth, intraocular pressure, inflammation, and repeat gonioscopy

Note: high risk patients with advanced optic nerve cupping, visual field loss or pressure > 30 may need sooner follow up appointment.

DISCHARGE INSTRUCTIONS:

Instruct patient to return if pain or decreased vision.

Give patient copy of Laser Peripheral Iridotomy Factsheet

Authors:

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Evidence Table

Author/s	Title	Source	Level of Evidence (I – VII)	Comments
	The Wills Eye Manual, 5th Edition, 2008		**VII**	
	Moorfields Manual of Ophthalmology, 2008		**VII**	
Tarek, M Shaarawy	Glaucoma, Volume 2, Surgical Management, 2009		**VII**	
Don Julian de Silva, Gus Gazzard, Paul Foster, Br J	Laser iridotomy in dark irides, Ophthalmol 2007;91:222-225		**VII**	

The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynk and Fineout-Overholt (2011).

I Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case series.

V Evidence obtained from systematic reviews of descriptive and qualitative studies.

VI Evidence obtained from single descriptive and qualitative studies.

VII Expert opinion from clinician, authorities and/or reports of expert committees or based on physiology.

CPG Suite General Disclaimer

These CPGs were written for use in the RVEEH speciality Emergency Department. They should be used under the guidance of an ENT or Ophthalmology registrar, and certain medications / procedures should only be undertaken by speciality registrars.

If you require clinical advice, please contact our admitting officer for assistance:
EYE: 03 9929 8033 ENT: 03 9929 8032

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